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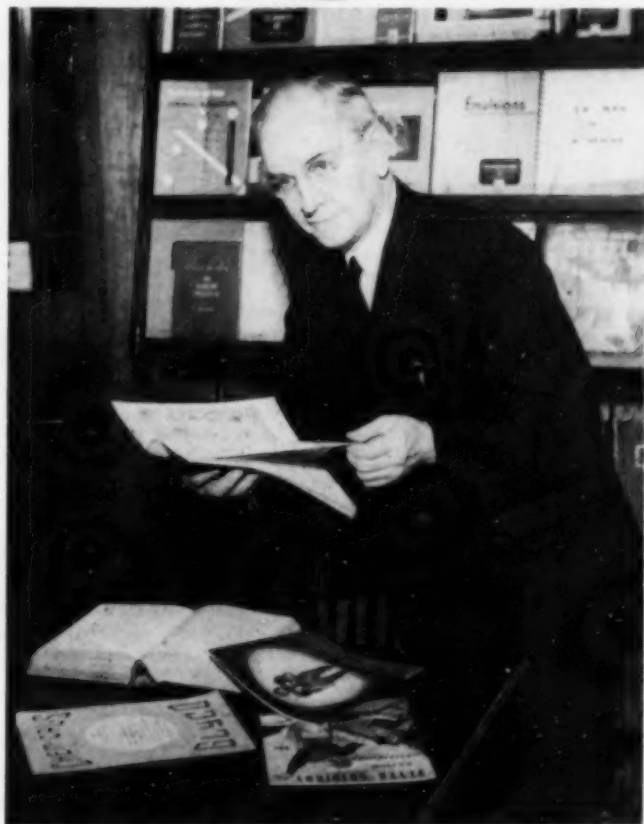
August, 1955

CHEMIST

VOLUME XXXII



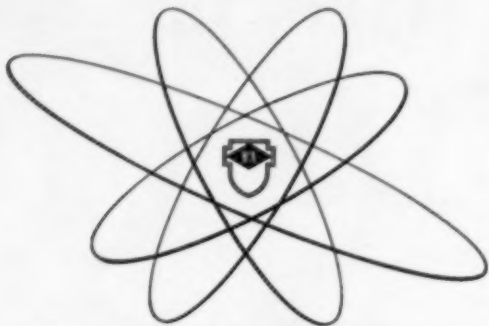
NUMBER 8



DR. WILLIAM J. WOHLLEBEN, F.A.I.C.

Receives Ohio Award

(See page 287)



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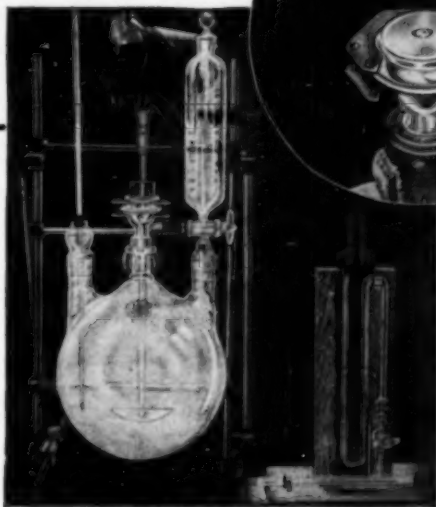
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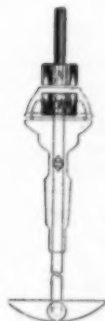


Fig. I

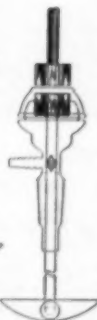


Fig. II

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Entered as second class matter April 8, 1936 at the Post Office at New York, N. Y., under Act of August 24, 1912. Issued monthly.
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Volume XXXII

August, 1955

Number 8

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IN THIS ISSUE

Editorial:

House Ways and Means Committee Approves Private Pension Plans, Benjamin Sweedler, F.A.I.C.	285
For More and Better Chemistry Teachers, Dr. William J. Wohlleben, F.A.I.C.	287
Presentation to Dr. Wohlleben	292
Why Professionalism? Dr. Ray P. Dinsmore, AIC President	293
Working With Salesmen, J. Warren Kinsman	299
Five Million Dollars for Basic Research	304
Council	305
AIC Activities	308
For Your Library	309
Communications	312
Report of the Secretary	313
Something New	316
Condensates	Inside Back Cover

(Departments omitted in this issue will be restored in later issues.)

TO COME IN SEPTEMBER

Dr. E. H. Northey, F.A.I.C., whose contributions to the AIC have long been appreciated, received the 1955 Honor Scroll of the New Jersey Chapter. His acceptance address entitled, "Some Problems of Chemists in a Growth Industry," will appear in September. • Dr. Charles D. Flory, under the title, "Keep the Gears in Mesh," will show what the individual can do to promote his own success besides being technically competent. • C. A. Stokes presents a lively paper on the "Human Problems of the Research Director."

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Johns-Manville	286	Scientific Glass Apparatus Co.	281
O. Johnson & E. Scudder	308	Foster D. Snell, Inc.	312
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EDITORIAL

House Ways and Means Committee Approves Private Pension Plans

Benjamin Sweedler, F.A.I.C.

Chairman AIC Committee on Special Legislation

(This Committee now reports the present status of the bill to enable the self-employed to set up pension plans on a par with those of the employed.)

A LONG STEP forward has been made in removing the inequities between the self-employed and those employed by employers having pension systems. Whereas, employed professional people obtain income tax benefits in that contributions made by their employers to pension plans are tax exempt, the self-employed do not receive the same income tax benefits.

The House of Representatives' Ways and Means Committee, in July 1955, approved, as income tax deductions, payments made to private retirement plans by the self-employed including chemists and chemical engineers.

As approved by the Committee, annual deductions of 10 per cent of the taxpayer's income is allowed to the extent of \$5,000. a year, or an over-all total of \$100,000., which income is used to establish one of the following types of retirement plans:

1. Restricted retirement trust.
2. Annuity contract approved by the Secretary of the Treasury; and
3. Life insurance annuity contract to the extent that

premiums are allocated to the annuity.

Benefits cannot be paid before the beneficiary reaches the age of sixty-five or becomes permanently and totally disabled. Payments to a survivor of the beneficiary are permitted.

Benefits are taxable when paid out. However, since in most cases the individual's total income is lower after retirement, the taxes paid on such benefits are at the lower rates then prevailing because of the smaller amount of reported income.

Members are urged to communicate with their Congressmen, if they wish to support this bill, which is a modification of the bill introduced into the House of Representatives by Representative Eugene J. Keogh (H.R. 10).

Grants: For support of basic research in the natural sciences, by the National Science Foundation, Washington 25, D.C., total \$1,600,000, to 120 projects. This is the second group of awards to be made during fiscal year 1955.



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When contacting the advertiser, please mention THE CHEMIST.

For More and Better Chemistry Teachers

Dr. William J. Wohlleben, F.A.I.C.

Dean of Chemistry and Chemical Engineering, University of Dayton,
Dayton, Ohio

(Presented when the author received the Ohio Award of the Ohio AIC Chapter, April 15, 1955, at the Mayflower Hotel, Akron, Ohio.)

EVERYBODY bewails the fact that chemists are in great demand whereas the supply is visibly scant. It is also agreed that interest in the science of chemistry needs awakening in the high schools. That is where the foundations are laid. Could it be that the "elective" system in such schools offers too many opportunities to the student for selections which represent the minimum effort toward the acquisition of the needed "credits" for graduation? The "tough" subjects are too easily evaded unless there is an effort made on the part of administrators to offer reasoned guidance around this prejudice against mathematics, physics, and chemistry.

On the other hand, the teacher has the problem and duty of presenting chemical science to the students in such a way as to activate their minds and lead them to thinking logically and scientifically. This, on the part of the teacher, makes it imperative that he be equipped with a natural gift and love for teaching, coupled with the needed serious information in the science and traditions of chemistry. The "awakening" referred to above thus involves the

This fine discussion of the ways to improve chemistry teaching also contains references to biographical material on the great chemists of yesterday.

cooperative efforts on the part of teachers and students.

The American Association for the Advancement of Science has just formulated some recommendations intended to supplement the shortage of science teachers. The AAAS urges recruitment refresher programs for such who are insufficiently grounded in mathematics, physics, or chemistry. This applies especially to ex-teachers turned housewives and frequently banned from the teachers' ranks. Another suggestion is somewhat revolutionary: The AAAS will plead with the university science departments to relent the preoccupation with Ph.D. research and spend more time and effort on future teachers at the bachelor and master levels. A third plan intended to stimulate interest is to inaugurate a national annual selection of several hundred teachers for special honor awards for distinguished service. All these

recommendations have been made by men of much experience and their conclusions in this matter of science teacher recruitment merits serious consideration by educational directors. While giving full sanction to the preceding suggestions, it seems to me that an additional item might have been included, an intangible element which has a compelling motivating force.

We hold that the teaching of chemistry should be, above all, a labor of predilection. Kekule informs us that in his London days he frequently visited his fellow chemist and friend, Hugo Miller, and that the main topic of conversation was invariably their "beloved chemistry." We know that the Kekule Theory of Benzene was conceived during the London stay. It is needless to recall what a profound effect this theory has had on the rebirth and stupendous growth of modern chemistry, notably in the field of aromatic organicals.

On the part of the teacher of chemistry, if he loves chemistry, he will be prompted to seek a solid formation not only in the science itself, but also in the special methods of presenting the "art" (as Goethe calls chemistry). He will be fired with a desire to improve his own mind in every conceivable manner for the better inspiration and guidance of his students. His teaching will be on a high level and brought down to the level of the students in an understandable and attractive manner.

There must be in his manner of teaching the ring of authority; students must feel that the master is not wavering, but that he is always on solid ground, that he is a mentor in whom confidence can be placed. In this respect let it be said that the "teaching" offered by some fellowship assistants is often fragmentary. What a happy situation exists when the chairman of the department takes over the freshman instruction! The writer recalls with ever renewed pleasure the suave and hypnotic control which Adolf V. Baeyer exercised over his Munich freshmen. In this country, Dr. Joel H. Hildebrand and others of like caliber have taken delight in teaching freshmen, functioning in this capacity even in their years of retirement!

The Sweet Condemnation

How can the young chemistry teacher cultivate this love for chemistry? Propinquity is the answer! The teacher must seek companionship of other chemists by membership in chemical societies. He must be a regular reader of professional journals and books. Conferences with more experienced teachers are also in order as well as visits to such plants which reduce chemical laws and reactions to products calculated to improve living conditions. Current book reviews are also helpful and this will probably lead to the gradual building of a personal library. This is another way of saying that the

teacher is condemned to a life of study—a sweet condemnation which becomes more and more beloved as the years march on.

Chemistry has a long genealogy and a family tree which covers the globe and reaches into the beyond. The historical implications of this statement are vast indeed. Undeterred by the almost disheartening extent and depth of the history of chemistry, the teacher will not overlook the history of the more salient discoveries in the variety of chemical endeavor. Just as interesting is the study of the lives and personalities of the pioneer chemists and contemporary leaders. The science was developed gradually and in our time very rapidly. Those who worked at this progress during the centuries were individuals wonderfully gifted and wonderfully human: Some were deadly earnest, others were puckish, argumentative or picturesquely eccentric. But underneath such exterior manifestations they were searchers for the truth as they believe it to be or as they saw it. Their lives and writings are stimulants. No wonder the student comes to life! Appetite is whetted, ambition is fired, a desire is born to emulate, at least in some degree, the ways of the great men. Lectures have a chance to be conducted with some verve, hearers become participants, not simply bench warmers. We realistically agree that the average student body includes such who are uninterested and such who can rise to great

heights. The historical approach will benefit the latter heavily, whereas the former will probably be mildly amused, perhaps even to the point of becoming eventually interested. Dr. Joel Hildebrand makes this comment when facing such a situation: "We university teachers should not be like sheep drovers, spending most of our time upon the stragglers; we should spend much of it upon those out in front who do not demand our attention." For my part, I do not think that this directive should be carried out too literally, although the suggestion has merit.

A rather interesting organized effort to promote and increase interest of young men and women in the chemical professions has been initiated by the American Chemical Society. In 1937, the ACS authorized the formation of undergraduate student groups known as "affiliate" chapters of the ACS. These chapters caught hold of the interest of educators in many colleges and universities. Between 1946 and 1951, there was a numerical increase of these chapters from 80 to almost 250. Such student chapters are chartered individually after they have complied with admission requirements. The core of these chapters consists of regular monthly meetings at which student papers are presented and discussed, or motion pictures are shown illustrative of chemistry and its industrial or economic applications. Occasional guest speakers drawn from local or other

sections aid to broaden the scope and outlook of the student's own work. The year's business usually ends with some social function. An interesting outgrowth of these chapter groups is the formation of joint meetings of several chapters in a given geographical area; these meetings are known as regional. These regional meetings "in miniature" are patterned after the regional meetings of the ACS. The participating groups sponsor the annual event in rotation. Those of us who have seen the affiliates in action can vouch for the mutually maturing influence they exercise. Mention should be made of a valuable by-product earned in the form of occasions for public speaking.

Biographical Sources

Popularizers of chemistry realize the interest-catching value of biographical material. Authors of chemical texts have also sensed the need for a historical background of the presentations. At least one college organic chemistry text has made a large use of this feature; these authentic portraits are accompanied by biographical references, traceable to the chemical journals usually available in the departmental library. It is surprising how readily a student evokes a mental picture of the men of science whose name-reactions or discoveries are met in lectures, conversations and reading. Mounted and framed authentic portraits are available and are of much help to establish "atmo-

sphere" in the library or business offices of major and minor executives.

The search for biographical material is much facilitated by the list of references found in the *Journal of Chemical Education*, Vol. 20 (1943), page 506. In its own name the J.Ch.E. has an easily available list of 100 titles of biographical material relating to eminent chemists of all nations. There is also another completed list of biographical sketches and obituaries covering the period of 1876 to 1918, to be found in the *Berichte*, Vol. 51 (1918). The Chemical Society (London) has a collection of fine biographies in three volumes, entitled "Memorial Lectures." The subjects of the lectures represent all nations. As to the lecturers themselves, they are outstanding Englishmen of the chemical profession, chosen by the Society to honor the memory of departed chemists of international fame. Only three non-Englishmen are contributors: van't Hoff, Ruzika, and Crafts. Individual biographies in book form are not cited here since they are easily traced in library catalogs. On that score, one exception is made. For the better student and older professionals who read German fluently, I would recommend the scholarly and beautifully illustrated and documented, "Das Buch der Grossen Chemiker," Verlag Chemie, Berlin, 2 volumes. These life stories make delightful reading. When the chemist sits back at ease after a hectic day and consorts

with the men of his profession who have had their dreams, their trials and failures, their successes and other vicissitudes of life even as you and I, then he may pick up where he has left off "with a heart for any fate."

The Need for Foreign Languages

The average American is not bilingual. If we substitute "the average chemist" for "The average American," does that also convey a like fact? Maybe it does.

It is estimated that 80 per cent of recorded chemical knowledge is printed in English. The bulk of the remaining is presented in German. Our wonderful *Abstracts* act as sign posts directing to the original sources. Fortunate we are if the sources are in English! However, a foreign language reference can throw a road block in our path. The German language is thus encountered in almost a majority of instances. An acquaintance with chemical German would be welcome. This problem of literature research should profitably be brought to the notice of prospective chemists. They should be made conscious of the need for being bilingual in so far as to be able to read foreign chemical literature. Because of its great scope and importance, this study of chemical German should be encouraged by the experienced men in the profession. A working knowledge is not so difficult to attain,

provided the student brings along the minimum of one year of solid German grammar. The literary German he brings needs amplification as to vocabulary and terminology. Word order and sentence structure often long and involved, call for a good pedagogue and a chemist!

None of the readers of this paragraph need be convinced of the need for a reading knowledge of an additional language. Your advice in this matter to high school students intending to enter the chemical profession will be well placed.

An attempt has been made to show that chemistry as a study and as a profession can be made both pleasurable and profitable in many ways. I have had years of contact with students who have since entered the "service"—the service to promote the ethical and material well-being of their fellow beings. Thus the teaching of chemistry can be a vehicle for casually imparting lessons of personal and civic conduct, and here too the great personalities in the galaxy of past chemists serve us.

The teacher-chemist is a grateful profession. All chemists, all the members of THE AMERICAN INSTITUTE OF CHEMISTS may have moments when they too can be teachers in public and private life as "chemist-teachers" and be instrumental in bringing more and better chemists into our fold.



Dr. Ray P. Dinsmore, AIC President; Dr. David P. Gans, Dr. Wohlleben, and Malvern J. Hiler, chairman of The Ohio Chapter.

Presentation to Dr. Wohlleben

DR. WILLIAM J. WOHLLEBEN, head of the Department of Chemical Engineering of the University of Dayton, received the Ohio Award of the Ohio AIC Chapter, at ceremonies at the conclusion of its all-day annual meeting, April 15, 1955, at the Mayflower Hotel, Akron, Ohio.

The presentation of the award was made by Dr. David M. Gans, retiring chairman of the Chapter. Malvern J. Hiler, who succeeded Dr. Gans as Chapter chairman, introduced Dr. Wohlleben. Dr. Wohlleben responded with an address en-

titled, "For More and Better Chemistry Teachers." (See preceding pages.) Some of Dr. Wohlleben's students came from long distances to the meeting to honor him, including one from Mexico, Federico Ferrara.

During the afternoon program, Dr. Ray P. Dinsmore, AIC president, spoke on "Why Professionalism?" (See preceding pages.)

The citation to Dr. Wohlleben reads:

For achievement in chemistry which has brought distinction to the chemical profession and to the Ohio Chapter.

Why Professionalism?

Dr. Ray P. Dinsmore

President, The American Institute of Chemists, Inc.

(Presented before the Annual Meeting of the Ohio AIC Chapter, Hotel Mayflower, Akron, Ohio, April 15, 1955.)

THIS country has achieved leadership in wealth, power, and social progress largely because of its industrial development which has permitted an unusual degree of individual freedom and initiative, and has created a social attitude among our people that is more tolerant than that which is found in other countries of the world. Every scientist knows that cause and effect relationships are postulated upon the invariable association of two events, as far as human experience goes. The one which always is observed to precede the other is looked upon as the cause. However, in matters affecting social relationships it is not always easy to determine the time order of events, to say nothing about their invariable association. For this reason there are many people who will argue that industrial progress is not the cause but the effect.

Whatever position you may take in the matter there can be little doubt that economic development, which depends so largely upon the progress of our industry, has now great importance to the prosperity, the security, and the happiness of our people. It is even apparent that this factor is important to the people in countless other countries.

If we grant these things to be true,

A professional scientist or engineer is an individual who with adequate training, experience, intellectual capacity, and moral integrity, effectively devotes his scientific or engineering skills to the service of society and his profession, in whatever assignment he finds himself, with a full sense of the personal responsibility and trusteeship conferred by his special training.

we must then agree that science and engineering have become such important factors in the progress of industry that they also must be given the same important significance that applies to industry itself.

Although growth itself is not a final criterion of value, I think we may agree, without much discussion, that the remarkable growth of research in industry which has taken place in the last decade is a firm indication of the importance which it holds in the minds of industrial leaders. It is sufficient to say that these people do not as a class, and over a considerable period, spend industry's income for unimportant frills.

Another trend which should be mentioned briefly is the increasing

tendency for universities and technical schools to divert a significant portion of the time and effort of their research people, including graduate students, to applied research as contrasted with fundamental research. This has been a natural move for self-preservation to replace in some degree the flow of income greatly reduced by our confiscatory tax system as applied to wealthy benefactors.

Another phenomenon of significance is the advent of atomic fission which so far has been applied in its most important aspects to destructive weapons, but which is slowly spreading into fields which will eventually produce revolutionary changes in our power and materials sources.

It is no longer true that a trained scientist or engineer may over the span of his active professional career, and by the exercise of reasonable diligence, keep his knowledge completely up to date in his own profession, and add to it a sufficient knowledge of the other scientific and engineering professions to pass critical judgment upon the activities of their members. This type of knowledge is growing so rapidly, and in so many divergent and abstruse fields, that it is often difficult or impossible to know what other professional people are talking about, to say nothing of evaluating the content of their discussion. Partly for this reason, and partly because scientific equipment is also becoming highly specialized and complicated, there has been a great

upsurge in the services performed by nonprofit research units and by consulting engineering organizations, both of which can bring to bear upon a problem experts and specialized equipment which may not be available to an industrial organization which requires their use.

Let us examine one other factor that was without much significance twenty years ago, but which now is of rapidly-increasing magnitude. That is the impact of advertising—written, spoken, and visual—which has firmly implanted in the public mind not only the importance of the role being played by science and engineering in the development of modern aids to health, transportation, and comfortable living, but has also imbued a large portion of the public with the belief that science and engineering can work miracles.

If we review all these trends and influences we cannot escape the conviction that science and engineering have assumed positions of such importance in our social structure that the integrity, behavior, and attitude of the individual in the performance of his professional duties have also become matters of great social importance.

Reaction on the Individual Chemists and Chemical Engineers

It is a perfectly logical development that teamwork and group action which have been so effectively devel-

WHY PROFESSIONALISM?

oped in this country should increasingly influence the utilization of scientific and engineering effort. However, this has meant that the individual, being less directly associated with a given accomplishment, does not acquire recognition and prestige as readily as when this work was done largely by individual effort. Moreover, the success of a large portion of our professional people is becoming more and more dependent upon their association with a large organization and their effectiveness in working with a group.

The public reaction to the advertising previously referred to has been to accord esteem to those people connected with applied research, and with little understanding or appreciation of the importance of basic discoveries. The knowledge that fundamental research was the key which opened the resources of atomic energy, which has been chiefly associated in the public mind with destructive weapons, has created considerable distrust of theoretical scientists. It is even a fact that quite a number of scientists have questioned the advisability of delving too deeply into the laws of nature because of the fear that the results may be used for the destruction of the very society that they are hoping to lead to higher levels.

There has also been some bungling by employers who are inexperienced in the methods of research who expect to see the research laboratory operated as a mass-production effort,

and who thereby create among the individual research workers a sense of frustration and futility.

Even in properly organized and conducted research and engineering groups there is now an interdependence of technicians, routine scientists or engineers, and creative scientists and engineers who spark new ideas but usually cannot develop their practical applications.

In addition to the changes in the public attitude, the mode of working, and the necessity for group association, the individual chemist and chemical engineer finds himself in circumstances that are further modified because there are not enough people with his training to supply the needs. This is brought about by an insufficient number being trained, a considerable number being taken away from their active work for varying lengths of time by the Military Forces, and the increased tendency to move into fields where their skills are used only to a minor extent. The resulting competition for his services may have an immediate effect on the individual chemist and chemical engineer to make him realize that many people place less importance upon competent training than upon numbers of people.

Thus, we can see that to a background of social change which increasingly emphasizes the social importance of the work of the scientist and engineer, there has been added a change in his working environ-

ment and under conditions where there is a need for the most effective performance, he suspects quality to be subordinated to quantity.

What Constitutes a Professional Chemist or Chemical Engineer

These conditions which we have just discussed point up the high responsibility, both of these professions and their individual members, to face their social obligations and to find effective means to meet them, so we can start off by saying that unless the attitude and actions of the individual effectively serve these ends, he has no right to consider himself to be a professional scientist or engineer.

Obviously the individual cannot do a competent job unless he has adequate training and supplements it by proper experience. If he is to deserve professional standing, he must uphold the dignity and integrity of his profession by the manner in which he deals with all of the people associated with him, either as non-professionals, fellow-professionals, employers, or the general public. In other words, he must know his job, he must utilize his knowledge with loyalty to his employer and due regard for the rights of other people, and especially the general public.

Because he has received specialized training which gives him special power of accomplishment, he owes a debt to society for making this possible which he must be alert to repay

where he can. He is especially obligated to promote his profession by adding to its knowledge and prestige, and by doing what he can to make it possible for others to acquire the knowledge and be indoctrinated with the objectives which he himself prizes.

Perhaps non-professional people can rationalize the position of allowing others to do their thinking and to take action for them in important matters, but the very nature of professional training requires that each individual professional unit exercise his own initiative and make his own decisions with respect to the obligations which he has accepted by taking the training and representing himself as a member of a scientific engineering profession.

The Price of Admission

It is fruitless to stop and argue now as to whether the scientific professions are important to the progress of society; it is also unprofitable to debate about whether that need can be filled by incompetent or irresponsible people or people who lack the character to do their own thinking and make their own decisions. Actually, the only debatable question is whether I as an individual expect to attain or maintain a professional level for myself; whether I am going to be one of the growing number of scientific professionals who will be given the same professional recognition as a doctor or lawyer, or whether

WHY PROFESSIONALISM?

I wish to be merely another highly-paid artisan.

If I shrink from making my own decisions; if I doubt my own competence; if I have no interest in what happens to future generations as long as I get my share now, I will never be a professional man. Professional acceptance starts with the individual. Professional societies cannot make professional people out of their members unless those members individually accept their proper responsibilities. The only thing that professional societies can do is to aid all their members to meet their technical problems, or to set the proper standards for behavior. They cannot create those elements of loyalty, integrity, initiative, and the other basic characteristics that are required to make a professional man.

Scientists and engineers for many years have utilized their skill, knowledge, and determination to overcome tremendous odds placed in their way by the natural elements. Their achievements have been applauded and remembered because they accomplished difficult tasks that others had found to be impossible. To some degree today we are faced with the necessity of establishing and maintaining conditions in industry which will make it possible for a real professional man to do his job in a professional manner. We should not be diverted from this because it requires that we deal with people instead of things. We should not be discour-

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aged because everyone does not see the light immediately. We should not permit ourselves to be dragged to the level of plumbers, mechanics, and bricklayers, just because we now have to perform our duties in groups instead of individually. If I am to be a truly professional man, I must think and act like one, and recognition will follow.

Announced: By Dr. Robert E. Hulse, F.A.I.C., vice president of National Petro-Chemicals Corporation, N. Y., that the new 26-million-pound per year polyethylene resin plant at Tuscola, Illinois, is now on-stream.

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Retired: Dr. Norman A. Shepard, F.A.I.C., as chemical director of American Cyanamid Company, New York 20, N. Y. During his forty-two year career in the chemical industry, he became widely known in industrial, governmental, professional and academic circles. He is a member of the Manpower Committee of THE AMERICAN INSTITUTE OF CHEMISTS, and has served as councilor and on many committees. He was graduated from Yale University in 1913. He and his wife make their home in Stamford, Conn.

Annual Meeting: Of the American Council of Independent Laboratories, Inc., to be held at the Westward Ho Hotel, Phoenix, Arizona, Nov. 8-11, 1955. Host will be Claude E. McLean of the Arizona Testing Laboratories, assisted by Michael J. Sullivan of the Valley Laboratories. For information: Dr. Harold M. Dudley, executive secretary of the Council at 4302 East-West Highway, Washington 14, D.C.

Elected: R. J. Abernethy, F.A.I.C., as secretary of the Toxicology Section of the American Academy of Forensic Sciences. Dr. Henry Freimuth was elected chairman of the Section. Mr. Abernethy is head toxicologist of the Office of Coroner, County of Los Angeles, Los Angeles 12, Calif.

Working With Salesmen

J. Warren Kinsman

Vice President, E. I. du Pont de Nemours & Company, Wilmington, Del.

(Presented at the First Professional Session of the AIC Annual Meeting, May 12, 1955, in Chicago, Ill.)

THE theme of this meeting, namely, "The All-Important Ability to Work Effectively with People," was well and timely chosen, because there has never been a period in all history when more attention has been given socially, politically, commercially and industrially than *now* to that requirement of modern civilization.

During the past twenty to thirty years, we in industry have become highly conscious of our public relationships, our employee relations, our shareholder relations and our relations with business prospects, customers and suppliers. Further, our relations with salesmen!

As a result of World War II rationing and the post-war shortages of supplies and services, Americans accused themselves of having lost the ability to sell. Nothing is further from the truth!

Those in sales not young enough to enter the Armed Forces were utilized as allocators of the available or as pacifiers of historically valued buyers denied, by circumstances, their usual prerogative of requisitioning the available supplies and services.

As the war effort decimated the

men in sales, they were not replaced, because all that was then necessary to move the results of production into consuming channels was the exposure of goods to public gaze and the sufferance of buyers to fight each other to take them away. Salesmanship sunk to low estate and research and production became "sacred cows."

Came another day—and the realization that finance, research and manufacturing were only three of the four cardinal supports to the endurable tetrahedron of enterprise which would collapse unless the fourth were present.

You can have one guess! What is it?

Right! The fourth is salesmanship!

Without it, how could we keep our factories busy, our populace employed, our shareholders happy and Federal and State governments satisfied with income to meet the affairs of state?

It is the life-blood of the American economic system.

It is the talent to lead people to spend an appropriate part of their income for self-betterment and a more abundant way of life.

Yes, came another day and the need to keep busy our over-expanded capa-

city to make, absent the defense effort and our national "give-away" programs to friendly nations fast restoring their own productivity.

Had we lost our ability to sell? Hardly!

The fact is that we just had not been permitted to sell and so our national selling organization deteriorated. It had brought no new young blood into the selling function and had failed miserably to have ready training courses for those soon to be needed.

Inevitably, competition for home-side and foreign business reared its ugly head and one day an older salesman called upon one of his favorite purchasing agents.

"Charlie," he said, "remember during the war and thereafter I took good care of you?"

"Yes, Oscar, I remember that with great appreciation, but what have you done for me lately?"

Thus we came to the modern era of intense competition and, in the chemical industry, of training men in technical sales servicing of a high order.

We all currently spend a great deal of time and money inquiring into and analyzing the nature of our associations with others—from individuals to small and large groups—with whom we coexist. More significantly those studies are frequently followed by actions to improve those relationships.

We either adapt ourselves to earn

better the approbation of others or engage upon campaigns to court their minds to our philosophy and conduct of affairs. Instead of being in the "Atomic Age," we are really in the "Pollar Age." Spelled P O L L A R, that is, the "Age of Inquiry Polls."

In the field of selling, this procedure takes the form of Market Research and among the salesmen of business, commerce and industry, it has become desirable to explore and understand their opinions so as to create and establish training programs that enhance their capacities toward the enlightened benefit of themselves, their employers, their fellow-workers, customers and the public at large.

Working with salesmen can and does provide one of the most rewarding and satisfying human-relationship experiences of life.

As one segment of society, salesmen of industrial products more often than not are well-educated, intelligent, of good presence, articulate and possess a high sense of integrity and ethical responsibility.

Built into or instilled into their character and personality is an appropriate degree of extroversion, for selling is seldom the profession to be embraced by those afflicted with introversion. Inherently, they either possess or develop that much admired talent to win and hold the esteem of others for themselves, their house and the goods or services they are selling.

Well-selected and well-trained

WORKING WITH SALESMEN

salesmen are equipped with attributes to become ambassadors of business. In many instances they may be the only representative of the corporation they work for, whom prospects and customers ever see.

To become business statesmen, salesmen must be thoroughly indoctrinated into and truly reflect their employer's philosophies, practices and objectives; the honorable traditions of their company; its contributions to our enterprise system and our American economy; its progressiveness in research and product development; its reputation for quality goods and services; its constructive employee and public relations policies and its good-citizenship in all communities and states where it has factories, offices or distribution facilities.

All of these desirable qualities and capacities naturally do not come wrapped up in a salesman when he is engaged. They are attained only after long and systematic training, which is why a corporation's initial investment in a thoroughly competent salesman ranges, according to a recent survey, from \$10,000 to \$20,000. Personally, I believe the cost is much more.

At the recent meeting in Cincinnati of the American Chemical Society, a panel symposium on "Education of Chemists for Sales and Sales Development" brought forth a variety of views as to whether colleges should undertake courses of instruc-

tion to qualify graduates for a career in selling.

The consensus seemed to be, and I agree with it, that colleges and universities should confine themselves to teaching students how to use their mental equipment through education in history, languages, sciences, mathematics, philosophy, economics, the humanities, liberal arts and as much more as the college years permit.

Prospects for the selling function should come to industry with a reasonably broad education and thereafter engage in specialization with the spirit that they intend to keep on learning until the day they retire.

All of this calls for a program of continuous instruction and training by the employer. Obviously, not all of it can be classroom instruction because the great preponderance of the instruction in, and acquisition of, sales skills and experience will be provided by the day-to-day training on the job.

However, after the introductory indoctrination of the newly engaged salesman, or the one who has been transferred to selling from the research, manufacturing or other branches of the business, into the fundamentals and essentials of salesmanship, there should follow refresher courses at appropriate intervals.

Salesmen being extroverts, it follows that their sales executives, in order to give leadership, counsel, inspiration and direction, must be extroverts, with perhaps an experience-

seasoned edge to qualify them for management.

In most cases, they probably are superior extroverts because they would never have forged through the ranks to positions of executive authority and responsibility unless they were.

The responsibility for training salesmen naturally falls upon the vice-president in charge of sales or the sales director, his headquarters and branch sales managers, as well as his field sales supervisors and the older salesmen.

The care and feeding of salesmen with mental food, procedures and techniques embraces, to mention only a few, such important details as: how to think straight; how to define, analyze and solve problems; how to turn complaints into sales; how to prepare encompassing reports and productive correspondence; how to organize sales efforts and appeal to the prospect's enlightened self-interest; how to detect the needs of prospects and customers; how to demonstrate that the product or services being offered can be utilized by the customer—or *his* customers—to make something for profitable sale; and a thorough understanding of and respect for the anti-trust laws and ethics of fair competition.

I have often said that businessmen should know almost more about the anti-trust laws than do lawyers, for it is businessmen, and not lawyers, who get into trouble.

Finally, it is important to teach salesmen how to avoid work. That may sound like an inconsistency. Not at all, it is just one way of saying that salesmen should be taught to conserve the precious hours of their business day and utilize them most efficiently and effectively.

Men who choose the chemical industry for a career in salesmanship are particularly fortunate, because they have as their market place every one of the 78 classes of business for which statistics are compiled by the U.S. Department of Commerce. Hence, the whole country and many foreign countries are their "oyster." But, to crack it:

Sales executives must possess or acquire the ability to motivate their subordinates to superior achievements. This can be accomplished only by incessant day and night devotion to enlightened leadership and constant association with the men and the jobs to be done.

Through conferences, meetings, case studies, manuals, refresher courses, bulletins, technical literature, promotional advertising, public speaking instruction and road trips with their sales executives can salesmen be brought to a high level of aspiration for success and advancement. From their groups must come some of the officers of corporations.

The world's sweetest music is praise and of extreme importance in building and maintaining good morale in the organization is the need to

WORKING WITH SALESMEN

recognize and reward top performances, not only financially, but spiritually.

There is usually enough credit and glory to go around, but they should be dispensed with discretion so as not to belittle their inspirational value.

Working with salesmen includes not only the formal business relationship but also a human, personal interest in the men and their affairs of life. For example, have regard for their personal safety while on the job.

While most employees of industry work in groups, the members of which encourage each other to observe sound safety precautions, salesmen almost invariably have to work as individuals and be their own reminders to act with care.

The nature of their duties requires them to travel constantly. In driving their cars, salesmen are continually exposed to the hazards of the road, often before dawn and frequently after dusk.

Moreover, their assignments take them into buildings, factories and laboratories where the safety precautions sometimes leave much to be desired. Accordingly some of their risks are greater than those to which other employees are exposed.

Sales managers should encourage their traveling representatives to observe every possible precaution against injury to themselves and anxiety to their families.

Practicing safety is good business for salesmen, as well as every other

employee interested in good business.

Essential to the successful management of a corporation is accurate sales forecasting. Since the basic data largely originates with salesmen, they should be thoroughly groomed in the ways to detect and report significant information.

Salesmen who live by the American free, competitive enterprise system should be encouraged to disseminate a clear understanding and appreciation of it among all with whom they come in contact. They can be great disciples of sound business, sound government and a stable, enjoyable way of life.

Finally, to the extent their out-of-town duties permit, salesmen should also be encouraged to practice good-citizenship by participation in the civic and humanitarian affairs of their communities.

A good citizen, active in his church, his local school system, his community's welfare problems and his town's government is invariably a better salesman.

Yes, "Working with Salesmen" is a truly great and glorious experience and I hope many of you derive as much spiritual satisfaction as I have in doing so these past forty years.

Appointed: Erving Arundale, F.A.I.C., as assistant director of the new Enjay Laboratories of Esso Research and Engineering Co., in Linden, N. J. He was formerly section head of the Chemical Division.

Five Million Dollars for Basic Research

The Alfred P. Sloan Foundation, Inc., has set up a fund of \$5,000,000, the principal and income of which are to be used to promote basic research in the physical sciences. The gift for this purpose was made to the Foundation by Mr. and Mrs. Alfred P. Sloan, Jr.

The trustees of the Foundation are convinced that a great need exists to expand activities in the area of basic research, and their conclusion was justified by the results of a year's study, made by five scientists headed by Dr. Roger Adams, Hon. AIC.

"We in the United States have been remarkable exploiters but not particularly good discoverers," Mr. Sloan stated during a press conference, and then referred to an article on this subject in the March 1955 issue of *Fortune*.

The foundation has set up a program committee of five scientists to discover areas of science in which there are extraordinary needs and an opportunity for fundamental advance, and to locate talented scientists to undertake such investigations effectively. This Committee is headed by Dr. Arthur C. Cope, F.A.I.C., head of the Department of Chemistry at Massachusetts Institute of Technology. Other committee members are: Dr. James Brown Fisk, director of research in the physical sciences, Bell Telephone Laboratories, Inc.;

Dr. K. S. Pitzer, head of the Department of Chemistry, University of California; Dr. Frederick Seitz, head, Department of Physics, University of Illinois, and Dr. A. W. Tucker, head, Department of Mathematics, Princeton University.

Dr. Richard T. Arnold, professor of chemistry, University of Minnesota, has been appointed administrator of the program. The individuals selected as investigators will be associated, for the most part, with American universities and technological institutions. One plan is to relieve them from academic duties for a time to devote their talents to promising areas of basic research. Another is to supply these investigators with funds to appoint predoctoral or postdoctoral fellows to participate in basic research with the senior investigator and to cover the cost of special services or necessary equipment.

Dr. Cope stated that the mechanism for making the awards was not fully arranged yet, but will probably consist of contact with the universities and grants to the institutions on behalf of individuals. The program will not be in full operation until 1956.

Mr. Sloan expressed the hope that the Foundation's program will also serve to encourage other foundations and groups to support basic research.



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May Meeting

The 303rd meeting of the AIC National Council was held May 11, 1955, at 6:00 p.m., in the LaSalle Hotel, Chicago, Ill. Retiring president Donald B. Keyes presided. The following officers and councilors were present: Messrs. R. P. Dinsmore, A. W. Fisher, Jr., L. H. Flett, K. M. Herstein, F. A. Hessel, D. B. Keyes, G. Kirton, J. H. Nair, P. E. Reichardt, W. J. Sparks, and L. T. Work. L. A. Hall, chairman of the Chicago Chapter; H. S. Bloch, B. S. Friedman, E. L. Gordy, and W. B. Hendrey of the Annual Meeting Committees; L. T. Eby, chairman of the Membership Committee; John Kotrady, retiring chairman of the New York Chapter, and V. F. Kimball were present.

The Treasurer presented the accountant's report for the fiscal year May 1, 1954 to April 30, 1955, showing that the excess of income over expenses during the

year was \$461.75.

The following resolution by Mr. Flett was presented:

Resolution

The Council of The American Institute of Chemists has learned of the death of Dr. Gustav Egloff on April 29, 1955.

The Institute is but the sum of all the efforts, ideas, thoughts and principles of its members who remember those particularly important parts of its structure which were built into it by Gustav Egloff, as the Institute president, as a gold medalist, and as a councilor for many years. The profession of chemist is richer because of him.

They do remember his lifetime of unselfish devotion to chemistry and to the men who made the modern chemical era possible. No effort was

too great nor any kindly deed too small if he could see good in it. The science and technology of petroleum became vigorous through his inventive genius and by the knowledge which he shared through his well-thought out books.

They do remember that he was the first to recognize the importance of a public understanding of chemistry. Throughout his career he was a leader in carrying the message of chemistry beyond the borders of the chemical profession. Through writings, lectures, and broadcasts he brought a forceful message to millions of people. He received many honors both here and abroad.

Always friendly and helpful, he was a devoted citizen.

Therefore be it resolved that the Council of The American Institute of Chemists record its deep sorrow in the passing of a great leader and true American.

Be it further resolved that the Council will honor his memory by renewed effort in seeking those objectives which he held so dear.

Be it further resolved that these resolutions be made a part of the permanent record of this meeting and that copies be forwarded with sympathy to Mrs. Gustav Egloff and to his devoted associates in the Universal Oil Products Company.

This resolution was adopted, and Dr. Hall was permitted to add the following editorial to the permanent records of the INSTITUTE.

Dr. Gustav Egloff

"It might be possible to add up some approximation of the debt which the America of today owed to Dr. Gustav Egloff. His pioneering researches into the application of science to the technology of petroleum processing were enormously valuable.

"But the impact of his sprightly mind, his insatiable curiosity, and the bold imagination with which he exhorted budding scientists to improve on nature, will bear fruit for many years to come. In his death last week, the world lost a figure infinitely more useful than many whose names are household words.

"Dr. Egloff had been research director of Universal Oil Products Co.

of Des Plaines since 1915. It is probable that his name was better known in international scientific circles than to many of his fellow townsmen. High honors came to him, but we should guess that none gave him as much satisfaction as a concrete result from his pursuit of knowledge. His was a rich and rewarding life."

—*The Chicago Daily News*
May 3, 1955.

Upon motion, the following resolution was adopted:

Resolution

Whereas, our colleague and good friend, Dr. Hilton Ira Jones, passed to his reward on May 1, 1955, and

Whereas, he was a past chairman of the Chicago Chapter of the AIC, and received the Honor Scroll of the Chicago Chapter in 1953, as well as a member of many other scientific societies and for many years was engaged as a teacher, professor, research chemist, consultant, and lecturer in the field of chemistry and at his death was the managing director and one of the owners of Hizone Products Company, and

Whereas, his many friends in the AIC deeply miss his presence as a gentleman of the highest integrity, scholarly achievement, wise counselling and enthusiastic supporter of the AIC,

Be it therefore resolved that the National Council of The American Institute of Chemists at its meeting on May 11, 1955, expresses its deep regret and sorrow that Dr. Hilton Ira Jones will no longer be with us in this world, and

Be it further resolved, that a copy of this resolution be sent to Mrs. Hilton Ira Jones and family as an expression of our sympathy and that a copy remain in the permanent files of The American Institute of Chemists.

The Council also referred the above resolutions to the Annual Business Meeting on May 12, 1955, for action by AIC members.

The Secretary presented his Annual Report, and announced with deep regret that, after the report was mimeographed, he had been informed of the following deaths among the membership. Dr. Gus-

COUNCIL

tav Egloff, Hon. AIC, on April 29, 1955; Dr. Hilton Ira Jones, F.A.I.C., May 2, 1955; G. W. M. Phillips, F.A.I.C., April 27, 1955; Dr. Enoch F. Story, Jr., F.A.I.C., August 23, 1954, and Donald J. Walls, M.A.I.C., April 17, 1955.

Dr. Keyes reported on the manpower situation that the Reserve Bill, which was up for consideration at that time, put in the hands of the President the selective recall of reservists. It formerly had the screening and transfer from the ready reserve to the standby reserve in the hands of the Secretary of Defense. This was changed by amendment within the House Armed Services Committee to place this transfer in the hands of the President.

Dr. Royer reported as chairman of the Committee on Employer-Employee Relation that his committee had inspected the Federal Civil Service standards for analytical chemists, made comments, and sent them to the Washington AIC Chapter for transmittal to the Civil Service Commission.

Mr. Reichardt, president of the Washington Chapter, commented on the Civil Service standards and requested continued cooperation.

Dr. Hall reported on the activities of the Chicago Chapter.

Mr. Kirton reported that the Ohio Chapter had held an all day meeting with plant trip on April 13th, and in the evening had presented its Ohio Award to Dr. William J. Wohlleben, F.A.I.C.

Plans are being made for the 1956 Annual Meeting which, Dr. Fisher confirmed, will be at the Boston, Mass., Statler Hotel.

Mr. Herstein stated that the New York Chapter's Student Medal Meeting was well-attended.

Dr. Sparks reported that the New Jersey Chapter awarded its Honor Scroll to Dr. E. H. Northey, F.A.I.C., at a well-attended meeting.

The tellers on election ballots announced that John H. Nair, Dr. George L. Royer, and Dr. Lloyd A. Hall had been elected councilors-at-large of the AIC.

The vacancy in the office of president-elect, caused by the succession of Dr. Dinsmore to the presidency vacated by resignation of Dr. Keyes, was filled by the appointment of John H. Nair.

The vacancy in the office of councilor-

at-large, thus created by appointing Mr. Nair to president-elect, was filled by the appointment of Mr. Herstein.

Dr. Hendrey stated that a substantial percentage of non-members had made reservations for the Annual Meeting.

Mr. Herstein introduced John Kotrady as the new representative of the National Council from the New York Chapter.

Dr. Hall introduced Dr. Bloch, Dr. Friedman, Mr. Gordy, and Dr. Hendrey as members of the Annual Meeting Committees.

A vote of thanks was given to retiring President Keyes and to the officers for the fine administration of the Institute during 1954-1955.

The following new members were elected:

FELLOWS

Althausen, Dr. Darrell

Vice President & Technical Director, Ungerer & Co., 650 Union Blvd., Towata Boro, N. J.

Fletcher, John Gill

Commodity Specialist, Chemical Division, U.S. Tariff Commission, Washington 25, D.C.

Olmer, Dr. Francois J.

Senior Chemist, Armour Research Foundation, 33rd & State, Chicago, Ill.

Pankratz, Ronald

Head, Analytical Control Lab., Flint, Eaton & Co., Decatur, Ill.

Rosner, Dr. Lawrence

Director, Laboratory of Vitamin Technology, 7737 S. Chicago Ave., Chicago, Ill.

Sherman, Dr. Edward

Chemist, The Quaker Oats Co., Research Labs., 345 E. 25th St., Chicago 16, Ill.

Weaver, James Bellamy II

Industrial Analyst, Planning Staff, Atlas Powder Co., Wilmington 99, Dela.

Member

Hinckley, Alfred A.

Assistant Group Leader, Chemical Hydrides Sec., Metal Hydrides, Inc., 12 Congress Street, Beverly, Mass.

ASSOCIATES

Cronin, Virginia

Chemist, Universal Oil Products Co., 30 Algonquin Road, Des Plaines, Ill.

Franco, Peter James

Reuter & Franco, Attorneys & Counsellors at Law, 55 Liberty St., N. Y. 5, N. Y.

**RAISED FROM MEMBERS
TO FELLOWS****Dean, Robert R.**

*Manager, Market Research Section,
Westvaco Chlor-Alkali Div., Food
Machinery & Chemical Corp., 161 E.
42nd St., New York 17, N. Y.*

Duane, William C.

*Vice President, Engineering, Carney
Company, Inc., Mankato, Minnesota.*

Walker, Dr. George B.

*Group Leader, Chemical Research
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AIC Activities

C. P. Neidig, F.A.I.C.

New Jersey Chapter

Chairman, Dr. Cecil L. Brown

Secretary, Dr. Albert B. Scott

Treasurer, Dr. William R. Sullivan

Representative to National Council,

Dr. H. W. Mackinney

Meetings Planned

The New Jersey Chapter plans to hold three or four meetings and a plant trip during this fiscal year.

A joint meeting with local sections of the American Chemical Society and of Research Society of America is to be held at Plainfield, N. J., on October 26th, on the subject of high school chemistry teaching and teacher's problems. This is part of a long range program. A committee (Dr. Neil M. MacKenzie, chairman) has been instructed to work with the New Jersey Science Teachers' Association to determine how the AIC can assist them. It is planned to have attending members bring the chemistry teachers of their local high schools as guests.

The Honor Awards meeting will be held in Newark, N. J., on May third. The plant trip being contemplated is unusual and will be on or about March 27th. A meeting is planned for November at New Brunswick, N. J., on the subject of leadership, with outstanding speakers.

Chicago Chapter

Chairman, Clifford A. Hampel

Vice-Chairman, Richard A. Maguire

Secretary, Dr. H. M. Coleman

Armour Research Foundation

10 West 35th St., Chicago 16, Ill.

Treasurer, Dr. C. A. Johnson

Representative to National Council,

Dr. Johan A. Bjorksten

Officers Elected

At the June 8th meeting of the Chicago Chapter, held in the Engineers Club, the new officers listed above were elected.

Niagara Chapter

Chairman, Warren B. Blumenthal

Chairman-elect, Dr. Carl H. Rasch

Treasurer, Dr. Maurice H. Fleyscher

Secretary, Dr. Joseph B. Muenzen, S.J.

Representative to National Council,

Dr. Johannes H. Bruun

Alternate, Dr. George H. von Fuchs

Appointments

Dr. Johannes H. Bruun, director of research and development of Hooker Electrochemical Company, was appointed as representative to the National Council for the Niagara Chapter. Dr. George H. von Fuchs, consultant, was appointed as alternate representative.

New Journal: *Virology*, published by Academic Press Inc., 125 E. 23rd St., New York 10, N. Y. Editor-in-Chief is Dr. George K. Hirst, of the Public Health Research Institute of the City of New York, Inc.

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The Evolution of Chemistry

By *Eduard Farber, Ph.D., F.A.I.C.* Ronald Press Company. 327 pp. 6" x 9". \$6.00.

This is the history of chemistry with a difference. The author believes that the history of chemistry should not be studied as an end in itself, but as a means to "learn how to face the future with the aid of the past." It should be recognized as just one thread in the fabric of the background of the history of mankind; and, at any period, the developments in chemistry should be considered in relationship to their surroundings—the economic, philosophical, and sociological conditions that may have contributed to them.

Following an introduction which competently expounds his thesis, the author apportions 22 chapters to cover three periods: I. Emergence of chemistry as a science (oldest records to end of 18th century); II, Development of chemical systems (late 18th to late 19th century); III, Specialization and industrialization (late 19th century to present). Each section starts with a good survey of the period, followed by individual chapters on various important topics, considered in terms of "four dimensions: man, time, place, object." The whole idea could be well represented by a short vertical line for the first period, diverging into several oblique lines for the second, which ramify horizontally and endlessly in the third.

The condensing of so vast a concept into so handy a volume presupposes an authority, not only saturated with sound knowledge of the history, the science, and the literature of chemistry and thoroughly conversant with the related subjects, but also competent to view it all objectively and skillfully place all the component parts in their proper perspective. Dr. Farber has shown himself to be admirably qualified on all points.

The book is well made and well printed, with many good illustrations and complete indexes of names and subjects. It should serve both as a fine introduction for those that think they are not interested in the history of chemistry, and as a valuable work of reference for devotees that might like to review any phase of it.

—FLORENCE E. WALL, F.A.I.C.

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Inorganic Reactions and Structure

By Edwin S. Gould. Henry Holt & Co. 1955. viii + 470 pp. \$6.50.

In his Preface the author explains that this book is intended to fill the gap between the small amount of inorganic chemistry which is taught in a general chemistry course, and what a graduate student requires for advanced work in structural inorganic chemistry. So the author has included the modern structural concepts at a level requiring only an average background in mathematics and physics. He discusses reaction chemistry, using recent interpretations so as to broaden the student's knowledge. Finally, the author has been selective to the extent that most of the group VIII elements are omitted and the lanthanides and actinides have only passing mention. Many less ordinary compounds of common elements are also omitted. All of this has the justification that the book is designed as a text for a special purpose and not as a general reference book.

Each chapter is followed by exercises which require knowledge of the chapter plus acute reasoning by the student to furnish correct answers. Chapters are also followed by a short bibliography with references mainly to book literature rather than to the original journal articles. We assume that the author has been guided by his teaching experience, although the reviewer feels that there is never too early an age for the student to learn to read original articles rather than predigested text books.

Students who have mastered this book will have a fine command of basic inorganic chemistry. The reviewer believes, from his own troglodyte standpoint, that a laboratory course along the same lines is essential. A few people, our author's teacher, Linus Pauling, for example, are able to deal with abstract concepts on an application level. These are the people who win Nobel prizes. For the rest of us, the reviewer favors the methodology reported by Benvenuto Cellini of his father when he saw a salamander. In other words, some good laboratory experience in the preparation and identification, often by quantitative analysis, of some of the structures of which our author speaks, would give the students a better command

of their subject matter for application. Actually, our author agrees with this, but the book itself might be construed to imply that a laboratory course is unnecessary. This is said to emphasize a different philosophy of education which has proved workable, while the modern scheme seems to have less success in turning out workers skilled with both their hands and their minds.

Certainly, this book is highly recommended to teachers who have to struggle with senior or graduate students who are almost lacking in acquaintance with inorganic chemistry.

—KARL M. HERSTEIN, F.A.I.C.

Industrial Detergency

Editor: William W. Niven, Jr. Reinhold Publishing Corp. 1955. 340 pp. 6" x 9". \$8.75.

Cleaning is one of the least understood and least appreciated operations in industry; it is seldom realized that it may be an important step in production. A book covering the entire field of industrial cleaning has long been needed, and *Industrial Detergency* fulfils this need. Both production cleaning and maintenance cleaning are well covered, although a little more space might have been devoted to the former, particularly as it relates to the metal industry. Following two introductory chapters, one on the fundamentals of cleaning and one on detergent materials, the book is divided into eight chapters, each covering a specific industry and each written by a specialist in the particular field.

Industrial cleaning calls for the removal of a wide variety of soils, some of which are imbedded in inaccessible recesses. The method of application of the cleaning solution and the equipment used for cleaning thus are vitally important. The editor and the contributors to *Industrial Detergency* have realized this and have provided a wealth of photographs and diagrams so as to acquaint the reader with industrial cleaning methods as well as with the materials used.

Industrial Detergency will certainly be a welcome addition to the literature of a little known field.

—DR. DONALD PRICE, F.A.I.C.

Chemical Books Abroad

Rudolph Seiden, F.A.I.C.

Georg Thieme Verlag, Stuttgart: *Methoden der organischen Chemie (Houben-Weyl)*, by E. Mueller; 4th ed. Vol. IV, Part 2: *Allgemeine Chemische Methoden II* (1004 pp., 77 ill.; DM 152.-) is the fourth of the planned 16 volumes (some in 2 or 3 parts) of this unexcelled standard work. No doubt, a gigantic project. Publisher, editor, and his staff are engaging in an undertaking for which chemists all over the world will be thankful. The new volume—masterfully printed and very well arranged—brings in 11 sections, written by 15 experts, all the facts known about catalysis; pyrochemical and electrochemical reactions; production of optical active and of isotopic compounds and of large ring systems; biochemical and microbiological-chemical reactions; and 102 pages of indexes.

Since reviewing Vol. IV-2, three additional volumes of "Houben-Weyl" have been received, all of them written, edited, and printed in the same manner mentioned above: Vol. VII, Part 1: *Sauerstoffverbindungen II* (556 pp., 2 ill.; DM 82.-) surveys the entire field of aldehydes (which has steadily grown in recent years)—the great variety of production methods; transformations of aldehydes; their reactivity, stabilization, purification; preparation of optically active aldehydes; and 52 pages of indexes. Vol. VIII: *Sauerstoffverbindungen III* (776 pp., 13 ill.; DM 98.-) deals with peroxides; derivatives of carbonic acid; nitriles, isonitriles, and fulminic acid; carboxylic acids, their esters, and decarbonizing methods; functional N-derivatives of carboxyl groups; and 60 pages of indexes. Vol. IX: *Analytische Methoden* (1070 pp., 252 ill.; DM 139.-) includes all essential analytical methods—organic elementary analysis; analytical determination of the functional atomic groups and classes of compounds; gas volumetric and gas analytical methods; determination of melting, boiling, freezing, and condensation temperatures; thermal analysis and determination of organic molecular compounds; chromatographic analysis; analysis of mixtures of solvents; and 84 pages of indexes.



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Verlag Chemie, Weinheim/Bergstr.: *Die silicatischen Tonminerale*, by K. Jasmund; 2nd ed., 192 pp. (74 ill.); DM 17.60.—The first edition of this monograph was announced in the August, 1951, issue of THE CHEMIST. Since then 250 investigations dealing with the properties and uses of silicates which make up most of the clays, have been published; thus, the number of literature references included in this new edition has almost doubled. • *Verteilungsverfahren im Laboratorium*, by E. Hecker; 1955, 229 pp. (89 ill.); DM 19.—The theory and methods of separating substances by distributing them between two nonmiscible liquids are fully explained, and their applications are discussed, e.g., for the separation of natural substances of reaction products in organic laboratories, determination of purity, molecular weights of chemicals, etc. The necessary equipment is described in detail.

Walter de Gruyter & Co., Berlin W 35: *Geschichte der Chemie, Vol. II*, by G. Lockemann; 1955, 151 pp. (16 ill.); paperbound DM 4.80.—A brief history of chemistry, from the discovery of oxygen to the present.

Georg Thieme Verlag, Stuttgart: *Sterilisations-Methoden fuer die pharmazeutische und aertzliche Praxis*, by C. L. Lauterschlaeger and H. Schmidt; 1954, 320 pp. (67 ill.); DM 29.70.—Two leading experts here present the theory and practice of sterilization, basing the text not only on literature sources but also on their own experiences in many laboratories and industries. The book fully delineates the reactions of micro-organisms under various physical and chemical con-



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ditions, investigational laboratory methods, and, more in detail, the production of sterile pharmaceutical preparations and modern methods of disinfecting.

Konradin-Verlag, Stuttgart: *Synthetische Wasch- und Reinigungsmittel*, by H. Stuepel; 1954, 568 pp., (225 ill.); DM 68.

—A new standard work dealing with synthetic detergents and other cleansing agents; it surveys concisely and in a systematic manner all the data on their chemistry, technology, composition, use, and economic importance; laboratory tests and essays are also given. With more than 17 literature and patent references.

Urban & Schwarzenberg, Munich 26: *Ullmanns Encyclopaedie der technischen Chemie*, Vol. V., by W. Foerst; 3rd ed., 854 pp., (237 ill.); DM 108.—All the superlatives used in the reviews of "Ullman" in *THE CHEMIST* of February, 1952, and March and October, 1954, would have to be repeated, should full justice be done the authors, editor, and publishers of the latest addition to this most useful work available to chemists and chemical engineers who search for up-to-date accounts on any subject which (according to the German alphabet) falls between the terms calcium carbide and diisocyanate. The variety of subjects covered is exemplified by the following brief list:

carbazole, carbonic acids, celluloid, cellulose, Ce, chemotherapy, quinoline (Chinolin), Cl, chloramine, chloroacetic acid, chlorinated hydrocarbons, Cr, crotonaldehyde, coumarone, HCN, cyclopolymerization, roofing paper (Dachpappe), dental chemistry, disinfection and sterilization, 2,3-butanedione (Diacetyl), diazotization, cyanoguanidine (Dicyandiamid), diene synthesis, diffusion, and a multitude of others.

Communications

Letter from India

To the Editor:

May I bring to the notice of readers of *THE CHEMIST* a comprehensive survey of the recently developed method of acid-base titrations in non-aqueous solvents, entitled "Non-aqueous Titration." This monograph (\$1.00) has been authored by Prof. Santi R. Palit ex of Stanford and Brooklyn, Dr. Mihir Nath Das, now at Rochester, and Sri G. S. Somayajulu of Indian Association for the Cultivation of Science. The senior author while working in Stanford developed the method of titration in glycolic media for the estimation of weak organic bases and salts of organic acids. Following up that work, the authors have now presented in this monograph of 122 pages, a rather detailed description and possible application of the glycolic titration method, as also a succinct account of the other methods of non-aqueous titration, particularly those developed in recent years. References have been made to about 250 publications directly connected with non-aqueous titration including 100 research publications in American scientific journals.

Should you so desire we might periodically submit lists of "Chemical Books—India" to Mr. Rudolph Seiden for incorporation in the section, "Chemical Books Abroad" of your esteemed journal. Perhaps the question of preparation of such bibliographies will be taken up at the 1st International Congress on Documentation of Applied Chemistry on 23-25th November, 1955, at London . . .

—HARIPRASAD SENGUPTA
 Indian Association for the
 Cultivation of Science
 c/o Prof. Santi R. Palit,
 Jadavpur, Calcutta 32, India

Delegate to Michigan State College

To the Secretary:

Thank you for the opportunity to be of service (as delegate to the Founder's Day celebration of Michigan State College, which is celebrating in 1955 its one-hundredth year. The Founders' Day Celebration on Feb. 12th, included a commemorative stamp program, an address by Dr. James B. Conant, Hon. AIC, U.S. High Commissioner for Germany, a centennial movie, "The Second Hundred", and the Centennial Awards' Banquet.)

Dr. Conant compared European and American educational systems, the latter being more nearly equal educational opportunity for all. President John A. Hannah in his address stressed equal educational facility for all of the working folks. Both men stressed the dignity of labor in all categories.

The stamp ceremony was impressive. Dr. Eisenhower was held up on account of the inclement Pennsylvania weather. He did, however, arrive in time to give his address at the close of the exercises. Penn State's track team started out at 1:30 p.m. on Friday, as did the Dr. The track team took a train to Pittsburgh, a plane from Pittsburgh. The Dr. was told

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to emplane from Harrisburg but that was no-go. His train broke down. Finally he got here. Shly he remarked that the only way to get here was to run all the way. Whether the track team won, I do not know!

The opening paragraph of the brochure issued by Michigan State for this occasion describes its history:

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—DR. C. C. DEWITT, F.A.I.C.
East Lansing, Mich.

Report of the Secretary

for the Fiscal Year 1954-1955

Dr. Lloyd Van Doren, F.A.I.C.

(Presented at the Annual Meeting in Chicago, Ill., May 12, 1955)

THE National Council held eight meetings during the year with an average attendance of twelve officers and councilors.

The following actions upon membership were taken:

<i>Elections</i>	
Fellows	52
Members	22
Associates	131
Total	205

<i>Reinstatements</i>	
Fellows	6
Associates	1
Total	7

<i>Resignations</i>	
Fellows	20
Members	10
Associates	13
Total	43

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Dropped

Fellows	3
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Deceased

Fellows	20
Honorary Members	4
Associate	1

 Total 25

 Total Gain in Membership 212

Total Loss of Membership 72

 Net Gain in Membership 140

Transfers

Fellow to Honorary	4
Fellows to Life	3
Members to Fellows	6
Associates to Members	1

TOTAL MEMBERS:

	May 1, 1954	May 1, 1955
Fellows	1906	1920
Members	285	292
Associates	311	427
Life	37	40
Honorary	36	36
	<hr/> 2575	<hr/> 2715

This year we have welcomed 212 members into the INSTITUTE to work for the professional advancement of chemists and chemical engineers.

Honorary Membership was conferred on the following Fellows:

Dr. Paul D. V. Manning; Dr. Milton C. Whitaker; Dr. Horace G. Byers, the first president of the INSTITUTE, and Dr. William J. Sparks, who received the 1954 Gold Medal of the AIC.

It is with deep regret that we record the following deaths among our membership:

Raymond F. Bacon (F)
 Joseph S. Chamberlain (F)
 Lawrence W. Devaney (F)
 Nickolas L. Dodge (F)
 William L. Evans (Hon.)
 David Fishkind (F)
 Lester F. Hoyt (F)
 Harry C. Kofke (F)
 Harry F. Lichtenberg (F)
 Simon Mendelsohn (Charter)
 Marks Neidle (F)
 Samuel Newmark (F)
 R. H. Patch (F)
 Herbert P. Pearson (F)
 Aksel M. Pedersen (F)
 J. C. Rambo (F)
 Charles F. Roth (F)
 William I. Shaw (F)
 Clifford R. Stewart (F)
 J. K. Stripp (A)
 Nathan Sulzberger (F)
 John Xan (F)

This has been a good year for the INSTITUTE; its accomplishments

REPORT OF THE SECRETARY

sparked by the energetic efforts of our President, Dr. Donald B. Keyes, to emphasize professionalism in its many aspects and to inspire chemists to be active participants in professional work.

The Committee on Manual of Chapter Operations, headed by Dr. Maurice J. Kelley, completed the Manual, which was printed and sent out to councilors and chapter officers for their guidance.

A new directory of AIC membership was made possible by the cooperation of its advertisers (who deserve all support from INSTITUTE members), and has been mailed out to the membership. Incidentally, this aided the secretary's office to bring its records up to date. We should emphasize here that it is important to send changes of mailing address to the AIC as soon as possible. Changes of business address or position should be sent in to be placed in the member's files for record, even if the mailing address is unchanged.

The Committee on Membership, headed by Dr. L. T. Eby, prepared a new leaflet for use in bringing the importance of the AIC to the attention of potential members. This has been printed for the Committee's use.

At the 1954 Annual Meeting, a committee to prepare a history of the INSTITUTE was appointed. Miss Florence E. Wall, chairman, is collecting material, and will welcome any that may be sent to her, about the early days of the INSTITUTE.

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The AIC was ably represented at hearings by the New York State Civil Service Commission and the New York City Civil Service Commission on salaries for chemists. Federal Scientific Classifications are being studied by the Washington Chapter in cooperation with the Committee on Employer-Employee Relations.

The AIC was also represented by delegates from the membership to the various dedications, installations, and ceremonies in the educational world.

The New Jersey Chapter of the INSTITUTE was eminently successful as host to the 1954 Annual Meeting, which was a thoroughly enjoyable meeting featuring an all-professional program.

A *Current Activities* report has been sent out from time to time to Chapter Officers and Councilors, with the Council minutes, from the Secretary's Office.

The Chicago Chapter is the second Chapter to initiate a local *Newsletter* to its members. (New York was the first.)

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The Pennsylvania Chapter has been keeping in close touch with possible ordinances in Philadelphia that may affect chemists, and the Western Chapter has been actively watching a situation in California that may involve the registration of chemists.

Other activities will be found in Chapter and Committee reports to be presented at this Annual Meeting.

We are grateful to the many members of the INSTITUTE who have given generously of their personal time and effort, through Committees, Chapters, and in other service, to advance the professional status of chemists. We are especially grateful to Dr. Keyes for his devoted service during this year, and we regret that he considers it necessary to resign at the conclusion of this Annual Meeting so as to implement the Constitutional Amendment limiting the office of President to one year hereafter.

Something New

"Chemical Patgrams". Weekly magazine devoted to chemical process and product patents. Sample copies may be obtained from Chemical Patgrams, Box 5559, Washington 16, D.C.

"Year Book of the Federation of Paint and Varnish Production Clubs," 160 pp. Includes directory of 3460 members, Constitution, Committees, etc. Order (\$1.50 per copy) from the Federation at 121 South Broad St., Philadelphia 7, Pa.

"Versalide, new synthetic musk." Samples and information. Givaudan-Delawanna, Inc., 330 W. 42nd St., New York 36, N. Y.

"How a Chemical Consultant Will Help You." Brochure. Florida Chemists & Engineers, Inc., 1709 No. Mills St., Orlando, Florida.

"Guide for Employers in Hiring the Physically Handicapped," 32 pp. 50 cents. National Association of Manufacturers, 2 East 48th St., New York 17, N. Y.

"Chemical Solution Feed Pump, Model S." Leaflet. Precision Chemical Pump Corp., 1396 Main St., Waltham, Mass.

"Isolation and Atmosphere Control Hood." Information. P. M. Lennard Co., Inc., 312 Pine St., Jersey City, N. J.

"Supplement to General Catalog," 264 pp. Price lists and new items. Arthur H. Thomas Co., P. O. Box 779, Philadelphia 5, Pa.

"Konisampler—A Compact Thermal Precipitator for Aerosol Sampling." Information. Joseph B. Ficklen, 3rd, F.A.-I.C., 1848 East Mountain St., Pasadena 7, Calif.

"Thermocon Low Temperature Distillation Apparatus." Improved. Information. Podbielniak, Inc., 341 East Ohio St., Chicago 11, Ill.

"Ultra-Viscoson Electronic Viscometer." Information. Cincinnati Div., Bendix Aviation Corp., 203 W. Third St., Cincinnati 2, Ohio.

"SpeedMatic Micro-Projector." Brochure. Catalog E-246. Bausch & Lomb, 635 St. Paul St., Rochester 2, N. Y.

"Mil-Shell Roll Grease Tester." Information. Precision Scientific Co., 3737 W. Cortland St., Chicago 47, Ill.

"MI Rapper. Device for automatic cleaning of electrodes in Cottrell Electrostatic Precipitator." Bulletin. Research-Cottrell, Inc., 405 Lexington Ave., New York 17, N. Y.

"Multi-Operation Cutting Tools." Catalog sheet. Woodruff & Stokes Co., Inc., 343 Lincoln St., Hingham, Mass.

"Corrosion Inhibitor, Q.A.I." for instrument disinfecting solutions. Specification sheets and samples. R. M. Hollingshead Corp., 840 Cooper St., Camden, N. J.

"Gardner Automatic Color Difference Meter." Information. Gardner Lab., Inc., 4723 Elm St., Bethesda 14, Maryland.

"Centi-Pin, Invisible Pin-Strip." Device to secure slip-covers, sheets, etc. E. J. Moser, 2509 Cascade St., Erie, Pa.

"Neo-Sponge" comfort floor mats. Information. American Floor Products Co., 4922 Wisconsin Ave., N.W., Washington 16, D.C.

"Nemagon" (1, 2-dibromo, 3-chloropropane) Soil Fumigant. Information. Shell Chemical Corp., 50 W. 50th St., New York 20, N. Y.

"Sylvania Molybdenum, NP-428." Booklet. Advertising Dept., Sylvania Electric Products, Inc., 1740 Broadway, New York 19, N. Y.

"Itaconic Acid in Commercial Quantities." Information. Chas. Pfizer & Co., Inc., 630 Flushing Ave., Brooklyn 6, N. Y.

"Industrial Thermometers." Catalog. Moeller Instrument Co., 132nd St., 89th Ave., Richmond Hill 18, N. Y.

"Multi-Point Indicating Pyrometers and Thermocouple Switches." Specification sheet. West Instrument Corp., 525 N. Noble St., Chicago 22, Ill.

"Standard Samples & Reference Standards." National Bureau of Standards Circular 552, 23 pp. 25 cents. Order from Government Printing Office, Washington 25, D.C.

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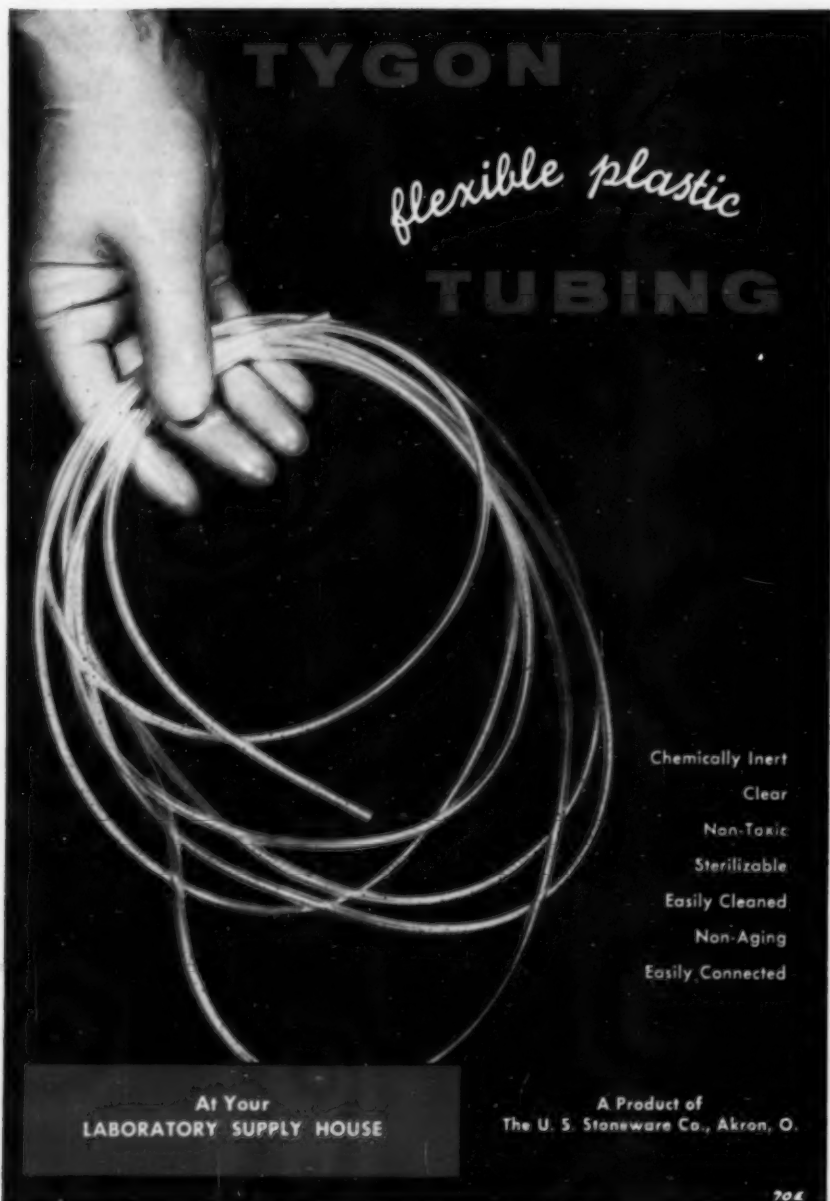
Condensates

Experiment, directed by the disciplined imagination either of an individual or, better still, of a group of individuals of varied mental outlook, is able to achieve results which far transcend the imagination alone of the greatest philosopher.

—LORD RUTHERFORD

The advance of science must depend on the initiative of those in the front lines of research. It must be the aim of each special branch to explore the alleys it has opened up, including those which are most probably blind, but as long as the branches are not controlled from headquarters their members will decide how this is to be done. Control by headquarters is sometimes necessary: We cannot demand that we should always be left to choose our own problems, for there are periods when we must all do as we are told, periods of emergency when we are threatened by war or famine or disease and must all join in a concerted attack. In fact, as scientists we have a double responsibility, for our general aim is to advance our understanding of nature, but we are now the members of a profession which has special responsibilities because of the way in which it can affect the whole structure of civilized life. The immediate claims of society have to be met and for this we must be willing to do more or less as we are told. For the long-term objectives we can do still better when we are allowed our independence, but only because there are some of us who will face the laborious work when there is no other way of resolving a doubt.

—E. D. ADRIAN



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